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C-A OPERATIONS PROCEDURES MANUAL

15.5.7 Refurbish an AGS Chamber Clamp

(Vacuum Group Procedure VA-008.18.1.7)

Note: This document was formerly a C-A Group Procedure. The content of the group procedure was reviewed by the Technical Supervisor. All approvals and/or issue dates of the original group procedure are maintained for present use.

Hand Processed Changes

<u>HPC No.</u>	<u>Date</u>	<u>Page Nos.</u>	<u>Initials</u>
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Approved: Signature on File
 Collider-Accelerator Department Chairman Date

S. Gill

Vacuum Group Procedure VA-008.18.1.7
Original Issue Date: 01/01/00
Revision 01

****IMPORTANT****

PRIOR TO THE PERFORMANCE OF ANY WORK WITHIN THE SCOPE OF THIS PROCEDURE, IT IS THE RESPONSIBILITY OF THE SUPERVISOR TO ENSURE THAT ***WORK PLANNING*** HAS BEEN REVIEWED FOR THE PROTECTION OF WORKERS, EQUIPMENT, AND THE ENVIRONMENT.

1. **PURPOSE:**

- 1.1 TO PROVIDE AN EFFECTIVE PROCEDURE FOR AGS VACUUM TECHNICIANS TO CORRECTLY REFURBISH 7.25", 9.5", AND 12" MARMON FLANGE CLAMPS USED IN THE AGS VACUUM SYSTEM.

NOTE:

THE 7.25" CLAMPS ARE NOT EQUIPPED WITH BUTTONS.

2. **RESPONSIBILITIES:**

- 2.1 THE AGS VACUUM SUPERVISOR SHALL BE RESPONSIBLE FOR THE IMPLEMENTATION OF THIS PROCEDURE.

3. **DISCUSSION:**

- 3.1 THIS PROCEDURE IS WRITTEN SO THAT TRAINED AGS VACUUM TECHNICIANS WILL BE ABLE TO TAKE A CLAMP APART AND RESTORE IT TO "LIKE NEW" STATUS IN SUCH A WAY THAT WILL BE QUICK, EFFICIENT AND WORK PROPERLY.

4. **PRECAUTIONS:**

- 4.1 THE TECHNICIAN SHALL BE AWARE OF RADIATION LEVELS IN THE AREA AND, WHERE REQUIRED, SHALL OBTAIN A RADIATION WORK PERMIT.
- 4.2 THE TECHNICIAN SHALL NOT REMOVE ANY MATERIALS OR EQUIPMENT FROM THE AGS RING UNLESS THEY ARE FIRST CHECKED BY HEALTH PHYSICS.
- 4.3 THE TECHNICIAN SHALL TAKE CARE AS NOT TO BREATHE IN ANY OF THE OVERSPRAY THAT COULD POSSIBLY OCCUR WHILE USING SPRAY MOLYLUBE.

5. **PREREQUISITES:**

- 5.1 THE TECHNICIAN WILL HAVE BEEN TRAINED IN THIS PROCEDURE.
- 5.2 ACTIVATION WORKER TRAINING (BNL OH&S GUIDE 3.5.0)
- 5.3 SAFETY GLASSES ARE REQUIRED FOR THIS PROCEDURE.
- 5.4 THE TECHNICIAN WILL DO THE SPRAYING EITHER UNDER THE EXHAUST HOOD LOCATED IN THE VACUUM LAB OR OUTDOORS. IN EITHER CASE, A DUST MASK IS REQUIRED FOR THIS PROCEDURE.
- 5.5 RUBBER GLOVES ARE REQUIRED FOR THE CLEANING PROCESS.

6. **OPERATIONAL PROCEDURE:**

- 6.1 CLAMPS SHOULD BE RADIATION CHECKED & TAGGED BEFORE LEAVING THE AGS RING. (H-P)
- 6.2 CLAMPS WILL BE LOGGED OUT OF THE AGS RING IN THE CORRESPONDING LOG BOOK & ALSO LOGGED INTO THE VACUUM LAB LOG BOOK UPON ENTRY TO THE SHOP.
- 6.3 REMOVE UPPER & LOWER THREADED BOLTS.
- 6.4 REMOVE R-C NETWORK RETAINERS & E-RINGS.
- 6.5 REMOVE BUTTONS & SPRINGS (4 EACH).

- 6.6 CLEAN ALL PARTS THOROUGHLY WITH ALCOHOL AND/OR ACETONE. IF EVIDENCE OF SPRAY SEALANT IS FOUND, USE ACETONE TO CLEAN IT OFF.
- 6.7 SPRAY INSIDE CLAMP SEGMENTS WITH “MOLYLUBE” UNDER THE SPRAY HOOD.
- 6.8 COAT THREADED BOLTS WITH “C-100” ANTI-SEIZE LUBRICANT. “MOLYLUBE” MAY ALSO BE SUBSTITUTED.
- 6.9 PLACE NEW KAPTON "DOTS" ON ALL 4 BUTTONS.
- 6.10 INSTALL BUTTONS & SPRINGS INTO CLAMP SEGMENTS.
- 6.11 INSTALL R-C NETWORK RETAINERS & E-RINGS. CHECK FOR TIGHTNESS OF E-RINGS. IF FOUND TO BE LOOSE, DISPOSE IN A RADIATION WASTE BARREL AND USE NEW RINGS.
- 6.12 INSTALL THREADED BOLTS INTO SEGMENTS “FINGER TIGHT”. CHECK FOR ANY GAULING OF THE THREADS. IF THIS OCCURS, A TAP AND/OR DIE WILL NEED TO BE USED.
- 6.13 TAG AS COMPLETED & STORE IN A SAFE PLACE.
- 6.14 WHEN READY TO TRANSPORT TO THE RING, BE SURE TO LOG OUT OF THE VACUUM LAB AND LOG INTO THE AGS RING.

7. ACCEPTANCE CRITERIA:

- 7.1 INNER DIAMETER OF CLAMP IS SPRAYED THOROUGHLY.
- 7.2 CLAMP WILL SWING OPEN FREELY WHEN BOLTS ARE LOOSENED.
- 7.3 E-RINGS ARE FASTENED SECURELY ON R-C NETWORK RETAINERS.
- 7.4 EACH OF THE 4 BUTTONS HAS A NEW KAPTON “DOT”.
- 7.5 PUSH IN BUTTONS & ENSURE THAT THEY “SPRING BACK”.